

## Cashew Leaf Miner: Biology, Damage and Management Measures

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### Introduction

Cashew (*Anacardium occidentale L.*) is an important commercial tree nut crop grown in many tropical countries including India. It is infested by several insect pests. In general, tea mosquito bug and cashew stem and root borer are considered as serious pests in most of the cashew growing regions of our country. Besides, there are few secondary insect pests which are considered important. Leaf miner, *Acrocercops syngamma* M. (Lepidoptera: Gracillariidae) is one such important pest of cashew (Pillai, 1980; Sundararaju, 1984). Occurrence of this species on cashew is recorded in different parts of India, Indonesia and Thailand (CABI, 2020). It is one of the serious pests of cashew especially during post monsoon period all over the country. It is very commonly noticed on seedlings and young plants. In older trees, new flushes get infested severely by this pest during the flushing period and the pest infestation is noticed during flowering season as well.

### Biology

Eggs are tiny, transparent and glue like, laid on the upper side of tender leaves. Eggs hatch in 5-7 days. During the developmental period, larvae are dull white in colour. Full grown caterpillars measure about 5-7 mm in length, are reddish brown in colour. After full development, the larvae fall off to the soil, where they pupate and emerge as adult moths after 7-9 days. Dull white to reddish brown small caterpillars can be seen within the feeding mines. Pupation takes place in soil within silken cocoon. The adult is a tiny silvery grey moth with red eyes.



### Seasonality

The incidence is most common in post monsoon flushes during August-December reaching the peak during October-November, but incidence can be seen up to April but at low level. The regular observations at cashew plantations of ICAR- Directorate of Cashew Research, Puttur revealed that the population build-up of leaf miner shows a gradual increase from August till October, reaching the peak during mid-November and then declining abruptly.

### Host Range

Cashew (*A. occidentale*), Mango (*Mangifera indica*), jamun (*Syzygium cumini*).

### Symptoms and Intensity of Damage

The mining injury by caterpillars occurs both on tender leaves as well as shoots. Young plants are observed to be prone to attack by this pest. The caterpillars mine and feed below the epidermal layer of the tender leaves causing extensive leaf blisters, which later dry up resulting in distortion, browning and curling of the leaves. As the attacked leaf ages, holes develop due to drying out of the damaged portion. Generally, 1-5 larvae are seen in a single leaf, but up to 45 larvae have been observed in single leaf during peak infestation at Puttur, Karnataka.

In general, a damage of 2.2 to 80.0 per cent have been recorded in cashew depending on the age of the tree, season and place in different cashew growing regions of the country (Abraham, 1958; Chatterjee, 1989). Observations by Vanitha et al. (2015) showed that the number of leaf miner larvae ranged between 1 and 10 per leaf in approximately 90 per cent of infested leaves. Besides, the number of leaf miner larvae per infested cashew leaf varies widely among the varieties. Correlation studies showed that there was no uniform correlation between leaf dimensions and number of leaf miner larvae (Jacob and Belavadi, 1990).



### Management Measures

In nature, leaf miner population is taken care by larval parasitoids. Two larval parasitoids viz., *Chelonus* sp. and *Sympiesis* sp. have been recorded on leaf miners in Kerala and Goa. In Puttur, Karnataka, three larval parasitoids namely, *Chyrsocharis* sp., *Aprostocetus* sp. and *Closterocerus* sp. (Eulophidae) were recorded, among which *Chyrsocharis* sp. is the dominant one. These parasitoids could parasitize leaf miner larvae even up to 50 % under field conditions (Vanitha, 2015). Spraying may not be required since these larval parasitoids manage this pest. But under severe incidence in nursery and young plants, spraying is required. Spraying of quinolphos (1.5 ml/lit) or monocrotophos (1.5 ml/lit) or profenophos (1.5 ml/lit) or lambda cyhalothrin (0.6 ml/lit) are found effective in managing this pest.

### Conclusion

Cashew leaf miner is one of the serious pests especially during post monsoon period all over the country and very commonly noticed on seedlings and young plants. Its feeding causes extensive leaf blisters, which later dry up resulting in distortion, browning and curling of the leaves. Spraying may not be required in older trees, since larval parasitoids manage this pest. However, severe infestation in young seedlings requires spraying.

### References

1. Abraham, E. V. 1958. Pests of cashew in South India. *Indian Journal of Agricultural Sciences*, 28: 531-534.
2. CABI, 2020. *Acrocercops syngamma* (Cashew leafminer). Accessed at [www.cabi.org/isc/datasheet/7029](http://www.cabi.org/isc/datasheet/7029) on 8th March, 2020.
3. Chatterjee, M. L. 1989. Insect pests on cashew in West Bengal and status of some important pests. *The cashew*, 3: 19-20.
4. Jacob, T. K. and Belavadi, V.V. 1990. Cashew leaf miner, *Acrocercops syngamma* M.- its status and larval size relationship with leaf area damage in the Andamans (India). *The Cashew*, 3: 7-8.

5. Pillai, G. B., Dubey, O. P. and Vijaya Singh. 1976. Pests of cashew and their control in India- a review of current status. *J. Plantation Crops*, 4 (2): 37-50.
6. Sundararaju, D. 1984. Studies on cashew pests and their natural enemies in Goa. *J. Plantation Crops*, 12: 38-46.
7. Vanitha, K. 2015. A report on the occurrence of eulophid parasitoids on the Cashew Leaf Miner *Acrocercops syngramma* Meyrick (Insecta: Lepidoptera: Gracillariidae). *Journal of Threatened Taxa*, 7(12): 7933-7936.
8. Vanitha, K., Bhat, P. S. and. Raviprasad, T. N. 2015. Pest status of leaf miner, *Acrocercops syngramma* M. on common varieties of cashew in puttur region of Karnataka. *Pest Management in Horticultural Ecosystems*, 21, (1): 55-59.